

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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GENERAL

1. The Taganrog Krasnyy Kotelshchik (Red Boiler Maker) Plant (Taganrogskiy Zavod Krasnyy Kotelshchik) is located 1.75 km north of the Taganrog (N 47-13, E 38-55) railroad station and east of the railroad line which runs approximately north from the station to Matveyev Kurgan (N 47-37, E 38-55) and Ilovaysk (N 47-55, E 38-13). A branch line of this railroad runs from the station to the plant and continues east to the large Metallurgical Plant i/n Andreyev, at a point about 1.5 km north of the station. The plant is located approximately three km west of the seacoast and immediately north of this branch line, which serves the plant. The Machine-Building Plant i/n Molotov is located north of the Krasnyy Kotelshchik Plant, and the large Agriculture and Armaments Plant No. 81 i/n Stalin is located further north near the Martsevo railroad station.

HISTORY

2. The Taganrog Krasnyy Kotelshchik (Red Boiler Maker) Plant was founded in 1896 by the firm of New and Wild and produced various types of industrial and domestic boilers. Manufacture of the Babcock and Wilcox horizontal section water-tube boilers started in 1902. Garbe and Kaestner vertical water-tube boilers and Yunt (Yuzhno-Russkiy Metallurgicheskiy Trest - South Russian Metallurgical Trust) boilers were also produced. Some of the cast steel parts were received from abroad. During the 1917 - 1921 Revolution, production at the plant was practically at a standstill, as Taganrog was the scene of much fighting. The plant was gradually restored after the Revolution and, by 1925 - 1926, the plant was in operation and was renamed the Taganrog Krasnyy Kotelshchik i/n Smirnov Plant.

EARLY PRODUCTION

3. The plant produced a small number of horizontal water-tube marine boilers, of a type which was manufactured chiefly at the Leningrad Metal Plant, in 1926-1927 and, between 1926 and 1930, produced vertical water-tube, four-drum

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boilers with straight water-tubes of five different types. These had 12-17 atm pressure and heating surfaces of from 150 to 600 sq m. The Leningrad Metal Plant i/n Stalin stopped production of horizontal water-tube marine boilers in 1931-1932 and their production was entirely taken over by the Taganrog plant. These boilers, which were of Babcock and Wilcox design, were allotted the letters "SM". The boilers produced in largest numbers were the SM 16/22 and SM 8/15. The SM 16/22 boiler, built in 1937-1938, had a steam output of 16 to 20 tons per hour, with heating temperature of 375°C, a pressure of 22 atm, and a total heating surface of 290 sq m. Production of SM boilers stopped in 1940.

4. The plant produced 3VG boilers of YUMT designs from 1931 to 1933. These were vertical, water-tube, three-drum boilers, which were designed for electric power stations, with a heating surface of 1,250 sq m, working pressure of 30 atm, superheated temperature of 400°C, and steam output of 60 tons per hour. Less powerful 3VG boilers with 400 sq m heating surface were also manufactured. The 3VG boilers burned coal dust.
5. The plant started producing the MP and SP Garbe (Kaestner and Garbe) Naval design, two-drum, vertical water-tube boilers in 1934. The MP 10/16 boiler had a steam output of 10-12 tons per hour, with a working pressure of 16 atm, 350°C temperature of superheated steam, and a heating surface of 166 sq m. The SP 25/22 had a steam output of 25-30 tons per hour, with a working pressure of 22 atm, temperature of 375°C, and a heating surface of 295 sq m. The plant also produced Shukhov-Berlin-type boilers with a total heating surface of 28,000 sq m and fire-tube boilers, mainly with one fire tube, with a heating surface of up to 100 sq m, and a working pressure of up to ten atm, that same year.
6. The plant produced two-drum screen (ekran) TskTI-TKZ-type boilers 120/150 and 140/160 in 1935. These boilers, which were fitted with economizers and pre-heaters, were designed by the Central Boiler and Turbine Institute and the Design Bureau of the Taganrog plant. The TKZ 120/150 boiler, with jet (fakelnyy) combustion system, had a steam output of 150 tons per hour, superheated steam pressure of 32.5 atm, and superheated temperature of 425°C. The heating surface had a radiation of 284 sq m, convection of 540 sq m, superheating 1,050 sq m, economizer of 400 sq m, and air preheating of 6,752 sq m. The weight of the metal parts of the boiler was 175 tons.
7. Production was started of the TKP, TKM, and TP single-drum, vertical water-tube boilers in 1936-1937. The TKP-1 boiler was fired with coal dust and had a maximum steam output of 150 tons per hour, pressure of superheated steam of 32.5 atm, water volume of boiler 30 cu m, temperature of superheated steam 410°C, diameter of drum 1,750/1,660 mm, and heating surface of coil economizer 830 sq m. The TKP-2 boiler had a steam output of 200 tons per hour, drum pressure of 35 atm, temperature of superheated steam 425°C, and water volume of 36 cu m. The total weight of the boiler was 570 tons.

PREWAR PRODUCTION

8. The TKP-3 boiler, built in 1937 and 1938, had an output of 200 tons per hour and a water volume of 54.6 cu m. The total weight of the boiler, including the metal platforms and ladders, was 717 tons. The TKM-6 boiler employed the chamber-method of combustion with natural gas and mazut fuel. Steam output was 160 to 200 tons per hour, superheated steam pressure was 32.5 atm, drum pressure 35 atm, temperature of superheated steam 420°C, and water volume of boiler was 54.6 cu m. The TP-7 boiler was fired with anthracite dust or lean coal dust. Its steam output was 120 to 150 tons per hour, superheated steam pressure of 32.5 atm, drum pressure of 35 atm, and a superheated steam temperature of 420°C. It was 28,350 mm high, 13,970 mm deep, and 9,100 mm wide. The TP-9 boiler had a steam

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output of 160 to 200 tons per hour, pressure of 32.5 atm, temperature of superheated steam 420°C, and it was 28,350 mm high, 14,200 mm deep, and 10,800 mm wide. The TP-11 boiler was fired with anthracite dust or lean coal dust and had a steam output of 120 to 150 tons per hour, pressure of 32.5 atm, superheated steam temperature of 420°C, and water volume of boiler of 62 cu m. It was 28,350 mm high, 13,970 mm deep, and 9,100 mm wide.

9. During the war, prior to the capture of Taganrog by the Germans, most of the plants' personnel and equipment were evacuated to the premises of the Podolsk (N 55-23, E 37-30) Machine-Building Plant i/n Ordzhonikidze, which had been evacuated. Taganrog was liberated from the Germans in August 1943. Restoration of the Krasnyy Kotelschchik Plant, which had been badly damaged, was immediately begun and, by the end of 1943, some of the buildings were partially restored and had started production of small boilers. In 1944, Lancashire double-fire-tube boilers with a heating surface of 100 and 120 sq m were produced for the mines in the Donets Coal Basin. At the end of 1944, the plant started production of more powerful boilers with a steam output of 100 tons per hour for the electric power stations of the Donets coal Basin. Boilers of this type were delivered to the following power stations: Zuyevka (N 48-04, E 38-15), Stalino Oblast; Makeyevka (N 48-02, E 37-58), Stalino Oblast; Shterovka; Kamensk (N 48-21, E 40-19), Rostov Oblast; Voroshilovgrad (N 48-34, E 39-19), Voroshilovgrad Oblast; and Shakhtnyaya.¹ The plant was fully restored, by the middle of 1947, and production of high-pressure boilers was started. Stalin prizes were awarded in 1948 to Plant Director Kazin, (fnu) who died in 1951; Chief Engineer Shamrayevskiy; Chief Designer Shutov; and other engineers and designers, for their part in the production of these boilers. Stalin prizes were also awarded to scientific workers of the Central Boiler and Turbine Institute who collaborated closely with the designers of the Krasnyy Kotelschchik Plant.

POSTWAR PRODUCTION

Single-Drum High-Output Boilers for Medium and High Pressures

10. The first model of the TP-150-1 single-drum boiler was produced in 1945. Its specifications are:

Fired with coal dust

Steam output 150 tons per hr

Superheated steam pressure 32 atm

Superheated steam temperature 420° c

Heating surface:

radiation 495 sq m

convection 240 sq m

steam superheater 897 sq m

water economizer 1,140 sq m

air preheater 5,940 sq m

Boiler water volume 51.5 cu m

Steam volume 9.5 cu m

Dimensions:

width between the axes of the columns 8,400 mm

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depth between the axes of the columns 13,975 mm

height from floor of ash pit to the upper
point of the steam conduit 32,000 mm

Total weight of metal 545 tons

Weight of metal under pressure about 195 tons

11. The first model of the TP-200-1 single-drum boiler was produced in 1946. Its specifications are:

Fired with coal dust

Steam output 200 tons per hr

Superheated steam pressure 32 atm

Superheated steam temperature 420° c

Heating surface:

radiation 600 sq m

convection 330 sq m

steam superheater 1,150 sq m

water economizer 1,870 sq m

air preheater 7,840 sq m

Boiler water volume 60 cu m

Steam volume 11.5 cu m

Dimensions:

width 10,800 mm

depth 14,200 mm

height 32,800 mm

Total weight about 645 tons

Weight of metal under pressure 235 tons

12. The first model of the TM-200-1 single-drum boiler was produced in 1947. Its specifications are:

Fired with mazut

Steam output 200 tons per hr

Superheated steam pressure 32 atm

Superheated steam temperature 420° c

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Heating surface:

radiation	365 sq m
convection	400 sq m
steam superheater	1,100 sq m
water economizer	1,970 sq m
air preheater	3,930 sq m

Boiler water volume	41.2 cu m
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Steam volume	11.5 cu m
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Dimensions:

width	10,800 mm
depth	12,900 mm
height from floor to upper point of main gate valve (glavnaya zadvizhka)	20,950 mm

Total weight	445 tons
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Weight of metal under pressure	194 tons
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13. The first model of the TP-170-1 single-drum boiler was produced in 1950. Its specifications are:

Fired with coal dust

Steam output	170 tons per hr
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Superheated steam pressure	100 atm
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Superheated steam temperature	510° c
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Heating surface:

radiation	552 sq m
convection	116 sq m
steam superheater	1,370 sq m
water economizer	1,900 sq m
air preheater	10,500 sq m

Boiler water volume	50.5 cu m
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Steam volume	6.7 cu m
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Dimension:

width	9,270 mm
depth	15,000 mm
height from floor to upper point of main gate valve	33,000 mm

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Total weight 887 tons.

Weight of metal under pressure 342 tons

14. The first model of the TP-230-1 single-drum boiler was produced in 1948. Its specifications are:

Fired with coal dust

Steam output 230 tons per hr

Superheated steam pressure 100 atm

Superheated steam temperature 510° c

Heating surface:

radiation 685 sq m

convection 164 sq m

steam superheater 1,965 sq m

water economizer 2,520 sq m

air preheater 8,890 sq m

Boiler water volume 65 cu m

Steam volume 7.8 cu m

Dimensions:

width 11,000 mm

depth 15,650 mm

height from floor to upper point of steam conduit 32,000 mm

Total weight 942 tons

Weight of metal under pressure 428 tons

15. The first model of the TP-230-2 single-drum boiler was produced in 1948. Its specifications are:

Fired with coal dust

Steam output 230 tons per hr

Superheated steam pressure 100 atm

Superheated steam temperature 510° c

Heating surface:

radiation 672 sq m

convection 164 sq m

steam superheater 1,790 sq m

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water economizer	2,590 sq m
air preheater	11,100 sq m
Boiler water volume	60.5 cu m
Steam volume	7.8 cu m

Dimensions:

width	11,000 mm
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depth	15,650 mm
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height from floor to upper front of steam conduit	32,200 mm
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Total weight	1,033 tons
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Weight of metal under pressure	436.5 tons
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16. The first model of the TP-200-2 single-drum boiler was produced in 1951. Its specifications are:

Fired with coal dust and mazut

Steam output	200 tons per hr
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Superheated steam pressure	32 atm
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Superheated steam temperature	420° c
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Heating surface:

radiation	571 sq m
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convection	280 sq m
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steam superheater	1,450 sq m
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water economizer	1,675 sq m
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air preheater	7,776 sq m
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Boiler water volume	54.4 cu m
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Steam volume	10.9 cu m
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Dimensions:

width	10,800 mm
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depth	14,200 mm
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height	32,100 mm
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Total weight	630 tons
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Weight of metal under pressure	225 tons
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17. The first model of the TP-130 single-drum boiler was produced at the beginning of 1952. Its specifications are:

Fired with coal dust

Steam output 130 tons per hr

Superheated steam pressure 32 atm

Superheated steam temperature 420° c

Heating surface:

radiation 394 sq m

convection 213 sq m

steam superheater 794 sq m

water economizer 1,175 sq m

air preheater 3,660 sq m

Boiler water volume 47 cu m

Steam volume 12 cu m

Dimensions:

width 9,000 mm

depth 11,410 mm

height from floor to upper point of safety valve 22,800 mm

Total weight 439.9 tons

Weight of metal under pressure 160.3 tons

18. Two TP-240 single-drum boilers were built in 1952 for a steam turbine with an output of 150,000 kw which was constructed at the Leningrad Metal Plant 1/n Stalin. Their steam output was 240 tons per hour, pressure was 170 atm, and temperature of superheated steam was 550°c.

Boilers with Coal Dust Furnaces and Layer Furnaces of Medium Steam Output for Normal and Raised Pressure

19. First models of the SM single-drum sectional boiler, with layer furnace (sloyevaya topka), were produced in 1940. Their specifications are:

Steam output 20 tons per hr

Superheated steam pressure 21 atm

Superheated steam temperature 375° c

Heating surface:

radiation 19 sq m

convection 268 sq m

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steam superheater	185 sq m
Boiler water volume	11.8 cu m
Steam volume	2.6 cu m

Dimensions:

width	4,870 mm
depth	6,600 mm
height	11,000 mm

20. First models of the TS-20 twin-drum boiler, with layer furnace, were produced in 1945. Their specifications are:

Steam output	20 tons per hr
Superheated steam pressure	22 atm
Superheated steam temperature	up to 420° c

Heating surface:

radiation	51 sq m
convection	210 sq m
steam superheater	170 sq m
water economizer	150 sq m
air preheater	520 sq m

Boiler water volume	12.25 cu m
Steam volume	3 cu m

Dimensions:

width	4,875 mm
depth	9,030 mm
height from floor to upper point of steam conduit	17,800 mm

Total weight	90 tons
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Weight of metal under pressure	about 30 tons
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21. First models of the TP-20 twin-drum boiler, with coal dust furnace, were produced at the end of 1945. Their specifications are:

Steam output	20 tons per hr
Superheated steam pressure	22 atm
Superheated steam temperature	375° c

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Heating surface:

radiation	87 sq m
convection	210 sq m
steam superheater	175 sq m
water economizer	64 sq m
air preheater	780 sq m

Boiler water volume	16.7 cu m
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Steam volume	5 cu m
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Dimensions:

width	4,875 mm
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depth	8,925 mm
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height from floor to upper point of safety valve	18,200 mm
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Total weight of boiler	95 tons
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Weight of metal under pressure	29.5 tons
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22. First models of the TS-30 twin-drum boiler, with coal dust furnace, were produced in 1946. Their specifications are:

Steam output	30 tons per hr
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Superheated steam pressure	22 atm
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Superheated steam temperature	400° c
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Heating surface:

radiation	66 sq m
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convection	274 sq m
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steam superheater	225 sq m
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water economizer	230 sq m
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air preheater	1,035 sq m
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Boiler water volume	18 cu m
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Steam volume	5.5 cu m
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Dimensions:

width	5,950 mm
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depth	9,120 mm
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height from floor to upper point of steam conduit	18,700 mm
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Total weight of boiler	130 tons
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Weight of metal under pressure	41 tons
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23. First models of the TP-30 single-drum boiler, with coal dust furnace, were produced in 1946. Their specifications are:

Steam output	30 tons per hr
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Superheated steam pressure	22 atm
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Superheated steam temperature	375° c
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Heating surface:

radiation	106 sq m
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convection	274 sq m
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steam superheater	225 sq m
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water economizer	160 sq m
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air preheater	1,035 sq m
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Boiler water volume	19.6 cu m
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Steam volume	5.5 cu m
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Dimensions:

width	5,800 mm
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depth	8,925 mm
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height from floor to upper point of steam conduit	19,350 mm
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Total weight of boiler	124 tons
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Weight of metal under pressure	about 40 tons
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24. First models of the TP-20/39 single-drum boiler, with coal dust furnace, were produced in 1950. Their specifications are:

Steam output	20 tons per hr
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Superheated steam pressure	40 atm
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Superheated steam temperature	450° c
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Heating surface:

radiation	94 sq m
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convection	62 sq m
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steam superheater	147 sq m
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water economizer	120 sq m
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air preheater	1,170 sq m
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Boiler water volume 14.3 cu m

Steam volume 6.1 cu m

Dimensions:

width 4,600 mm

depth 10,060 mm

height from floor to upper point of
safety valve 18,900 mm

Total weight 134 tons

Weight of metal under pressure about 45 tons

25. First models of the TS-35-1 single-drum boiler, with layer furnace, were produced at the end of 1950. Their specifications are:

Steam output 35 tons per hr

Superheated steam pressure 40 atm

Superheated steam temperature 450° c

Heating surface:

radiation 104 sq m

convection 93 sq m

steam superheater 330 sq m

water economizer 502 sq m

air preheater 824 sq m

Boiler water volume 17.7 cu m

Steam volume 7 cu m

Dimensions:

width 5,740 mm

depth 12,480 mm

height from floor to upper point of
safety valve 19,800 mm

Total weight 190 tons

Weight of metal under pressure about 65 tons

26. First models of the TP-35-1 single-drum boiler, with coal dust furnace, were produced at the end of 1949. Their specifications are:

Steam output 35 tons per hr

Superheated steam pressure 40 atms

Superheated steam temperature 450° c

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Heating surface:

radiation	190 sq m
convection	90 sq m
steam superheater	390 sq m
water economizer	220 sq m
air preheater	1,980 sq m

Boiler water volume	23.3 cu m
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Steam volume	7 cu m
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Dimensions:

width	5,740 mm
depth	10,870 mm
height from floor to upper point of safety valve	21,000 mm

Total weight	220.3 tons
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Weight of metal under pressure	71.3 tons
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27. First models of the TS-35-2 single-drum boiler, with jet and layer furnace, (fakelno-sloyevaya topka), were produced in 1952. Their specifications are:

Steam output	35 tons per hr
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Superheated steam pressure	40 atm
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Superheated steam temperature	450° c
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Heating surface:

radiation	133 sq m
convection	96 sq m
steam superheater	383 sq m
water economizer	850 sq m
air preheater	550 sq m

Boiler water volume	18.5 cu m
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Steam volume	7 cu m
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Dimensions:

width	5,740 mm
depth	11,120 mm
height from floor to upper point of main gate valve	19,550 mm

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Total weight 183.6 tons

Weight of metal under pressure 73 tons

28. First models of the TM-35 single-drum boiler, with mazut burning jet furnace [fakelnaya topka (mazut)], were produced in 1951. Their specifications are:

Steam output 35 tons per hr

Superheated steam pressure 40 atm

Superheated steam temperature 450°C

Heating surface:

radiation 167 sq m

convection 37 sq m

steam superheater 332 sq m

water economizer 375 sq m

air preheater 820 sq m

Boiler water volume 22.2 cu m

Steam volume 6.3 cu m

Dimensions:

width 4,930 mm

depth 10,570 mm

height from floor to upper point of safety valve 14,800 mm

Total weight 149 tons

Weight of metal under pressure 62.5 tons

Low-Output Boilers

29. A few low-output boilers are produced by the plant. A welded, twin fire-tube steam boiler was produced in 1949. Its specifications are:

Steam output 2 tons per hr

Drum pressure 9 atm

Heating surface (convection) 92 sq m

Dimensions:

width 4,200 mm

depth 13,080 mm

height 2,260 mm

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thickness of shell plate	17 mm
thickness of end plate	24 mm
length of fire-tube	10,230 mm
outside diameter of fire-tube	825 mm
thickness of wall of fire-tube	15 mm
Total weight	19.5 tons

Utilizer Boiler (kotel utilizator)

30. The first KU-40 horizontal, gas-tube utilizer boiler was produced in 1950. Its specifications are:

Maximum steam output	7.4 tons per hr
Average steam output	5.2 tons per hr
Steam pressure	9 atm
Superheated steam temperature	246° c - 254° c
Heating surface	485 sq m
diameter of tubes	60 x 3 mm
number of spiral tubes (zmevevik)	438
Heating surface of superheater	17.2 sq m
diameter of tubes	38 x 3 mm
number of spiral tubes	24
Diameter of boiler shell	2,600 x 16 mm
Length of shell	6,500 mm

31. First models of the UKTSM-6/14 natural-circulation, utilizer boiler, for non-ferrous metallurgy furnaces, were constructed in 1952. They were designed by Giprotsvetmet (Gosudarstvennyy institut po proyektirovaniyu predpriyatiy tsvetnoy metallurgii - State Planning Institute for Nonferrous Metallurgical Enterprises), and their specifications are:

Volume of gas from furnace (zapechnyy gaz)	up to 17,000 cu m per hr
with temperature	up to 1,200° c
Steam output	6 tons per hr
Pressure at outlet from boiler	14 atm
Heating surface:	
radiation	48.4 sq m
convection	163 sq m
air preheater	425 sq m
Diameter of upper drum	1,230/1,194 mm

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Diameter of lower drum	1,000/958 mm
Length of cylindrical section of upper drum	4,970 mm
Length of cylindrical section of lower drum	4,060 mm
Diameter of boiler tubes	60 x 3 mm
Total weight	61 tons
Weight of metal under pressure	21 tons

32. First models of the UKTSM-15/40 natural-circulation utilizer boiler, for non-ferrous metallurgy furnaces, were constructed in 1952. Their specifications are:

Volume of gas from furnace	up to 37,000 cu m per hr
with temperature	up to 1,200° c
Steam output	15 tons per hr
Pressure at outlet from boiler	40 atm
Temperature of superheated steam	450° c
Heating surface:	
radiation	152.5 sq m
convection	350 sq m
steam superheater	260 sq m
Diameter of upper drum	1,600/1,488 mm
Diameter of lower drum	1,450/1,346 mm
Length of cylindrical section of upper drum	4,800 mm
Length of cylindrical section of lower drum	3,640 mm
Diameter of boiler tubes	60 x 3 mm
Diameter of steam superheated tubes	42 x 3.5 mm
Total weight	13,493 tons (sic)
Weight of metal under pressure	55.7 tons

33. The first model of the KU-50, also known as the GKU-50 coil-utilizer boiler, with multiple forced circulation (mnogokratnaya prinuditelnaya tsirkulyatsiya), was built in 1951. This boiler was designed by Gipromez (Gosudarstvennyy nauchnyy institut po proyektirovaniyu metallurgicheskikh zavodov - State Planning Institute for Metallurgical Plants) and its specifications are:

Maximum volume of gas from furnace	40,000 cu m per hr
Steam output	9 tons per hr
Steam pressure in drum	19 atm
Superheated steam pressure	18 atm

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Superheated steam temperature	350° c
Heating surface:	
steam superheater	62 sq m
evaporating coils	511 sq m
economizer	155 sq m
Chessboard arrangement of tubes with diameter	32 x 3 mm
Diameter of cylindrical section of drum	1,500 mm
Length of cylindrical section of drum	3,000 mm
Bracket-type flue gas pump: output	110,000 cu m per hr
at water column pressure	200 mm
with electric motor with output	110 kw
Single-wheel circulation pump: output	85 cu m per hr
power	14.5 kw
Total weight	40.6 tons
Weight of metal under pressure	27 tons

34. The first models of the KU-60 coil-utilizer boiler, with multiple forced circulation, were built in 1951. Their specifications are:

Maximum volume of gas from furnace	60,000 cu m per hr
Average volume of gas from furnace	42,000 cu m per hr
Maximum steam output	8.9 tons per hr
Average steam output	5.6 tons per hr
Steam pressure in drum	18.3 atm
Superheated steam temperature	375° c
Heating surface:	
steam superheater	71.6 sq m
evaporation coils	528.6 sq m
economizer	144.8 sq m
Chessboard arrangement of tubes with diameter	32 x 3 mm
Diameter of cylindrical section of drum	1,500 mm
Length of cylindrical section of drum	4,000 mm

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Two-sided suction flue gas pump: output	150,000 cu m per hr
water column pressure	240 mm
with electric motor with output	200 kw
Single-wheel circulation pump: output	90 cu m per hr
power	15 kw
Total weight	50 tons
Weight of metal under pressure	25 tons

35. The first model of the KU-80, also known as the TsEMP-80/15, coil (zmeyevikovyy) utilizer boiler, with multiple forced circulation, was produced in 1950. The specifications of this boiler, designed by the Tsentroenergo (Tsentrallyy energeticheskiy - Central Electric Power) Trust of the Ministry of Non-Ferrous Metallurgy, are:

Maximum volume of gas from furnace	77,500 cu m per hr
Average volume of gas from furnace	58,000 cu m per hr
Maximum steam output	15.2 tons per hr
Average steam output	8.9 tons per hr
Steam pressure in drum	18.5 atm
Superheated steam pressure	17.5 atm
Superheated steam temperature	375° c
Heating surface:	
steam superheater	84.2 sq m
evaporation coils	778 sq m
economizer	216 sq m
Chessboard arrangement of tubes with diameter	32 x 3 mm
Diameter of cylindrical section of drum	1,500 mm
Length of cylindrical section of drum	4,250 mm
Bracket-type (konsolnyy) flue gas pump (dymosos)	
with output	170,000 cu m per hr
with electric motor	240 kw
Single wheel-type circulation pump	
with output	140 cu m
with power	18.5 kw
Total weight	65 tons
Weight of metal under pressure	35 tons

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36. The first centralized installation for four Martin furnaces, each of 130 tons-charge capacity, was built in 1953 and is still undergoing tests. Heating surfaces are installed behind each furnace boiler, which are connected to a common drum. The construction of the boiler is similar to that of the KU-60, apart from the absence of steam superheater, water economizer, and individual drum.

Miscellaneous Equipment

37. Boiler equipment for electric power stations and industrial enterprises and equipment for oil refineries built by the Taganrog Krasnyy Kotelschik Plant includes the TKZ air preheaters (vozdukhopodogrevatel). The plant produced plate air preheaters with vats (kub) of ten different sizes before and immediately after the war. These were replaced in 1947 by VT-2 and VT-3 tubular vats of various sizes. The heating surface of the vats covers 217 to 426 sq m, the number of vat tubes is 567 to 1,113, diameter of the tubes is 51 mm, and the weight of the vats is 4,000 to 7,160 kgs.
38. The plant also produces three types of muffle furnaces. Their specifications are:
- | | | |
|----|---------------|------------------|
| a. | Output | 750 kgs per hr |
| | Grate surface | 0.405 sq m |
| | Weight | 1,145 kgs |
| b. | Output | 2,500 kgs per hr |
| | Grate surface | 0.652 sq m |
| | Weight | 1,725 kgs |
| c. | Output | 3,000 kgs per hr |
| | Grate surface | 0.815 sq m |
| | Weight | 1,810 kgs |
39. The specifications for the plant's coal dust burners are:
- | | | |
|----|--------|-----------------|
| a. | Output | 5.5 tons per hr |
| | Weight | 1,040 kgs |
| b. | Output | 4 tons per hr |
| | Weight | 1,225 kgs |
| c. | Output | 3 tons per hr |
| | Weight | 920 kgs |
40. The gas burners produced are of two types: No. 1 with slot burners for blast furnace gas has an output of 15,000 cu m per hour and weight of 1,020 kgs; No. 2 with output of 12,500 cu m per hour and weight of 1,020 kgs; No. 3 with output of 12,000 cu m per hour and weight of 960 kgs; and No. 4 has an output of 10,000 cu m per hour and weighs 890 kgs. Burner No. 1 for coke gas has an output of 2,500 cu m per hour and weighs 345 kgs. The plant also produces various types of boiler drums, containers for oil refineries, such as fractionating columns with diameters of about three m, vanadium columns, evaporators, gas separators, and air collectors for compressors.

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OUTPUT

41. [redacted] The Krasnyy Kotelshchik . Plant produces at least 25 percent more boilers than the Podolsk Machine-Building Plant i/n Ordzhonikidze, which turns out boilers of almost identical design. The Podolsk Plant, however, produces more oil equipment.

25X1

PERSONNEL

42. The number of workers in 1930 was about 2,200; this number has now risen to 9,500.

BUILDINGS AND SHOPS

43. The plant consists of four very large and several smaller buildings, which contain the following shops:

First Machine shop (pervyi mekhanicheskiy tsekh)
 Second Machine shop (vtoroy mekhanicheskiy tsekh)
 Metal construction shop (tsekh metallokonstruktsii)
 Foundry (литейный tsekh)
 Forge (кузнечный tsekh)
 Press shop (прессовый tsekh)
 First Boiler Assembly shop (первый котелноборочный tsekh)
 Second Boiler Assembly shop (второй котелноборочный tsekh)
 Tube shop (трубный tsekh)
 Boiler shop (котельный tsekh)
 Preparatory shop (заготовительный tsekh)
 Oil equipment shop (tsekh nefteapparatury)
 Metal article shop (метизный tsekh)
 Electrode shop (электродный tsekh)
 Welding shop (сварочный tsekh)
 Tool shop (инструментальный tsekh)
 Electric shop (электротsekh)
 Machine repair shop (ремонтномеханический tsekh)
 Building and repair shop (ремонтностроительный tsekh)
 Steam power shop (паросиловый tsekh)
 Transport shop (транспортный tsekh)
 Railway shop (железнодорожный tsekh)
 Salvaging department (tsekh shirпотреба)
 Agricultural machinery spare part shop (tsekh zapasnykh chastei sel'skokhozyaystvennykh mashin).



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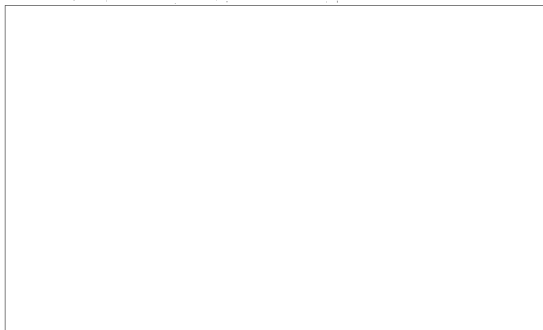
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1.  Comment: Shterovka is probably the Shter Regional Electric Power Station at Krasnyy Luch (N 48-08, E 38-56) in Voroshilovgrad Oblast and Shaktnyaya the Artemgres Regional Electric Power Station at Shakhty (N 47-46, E 40-12) in Rostov Oblast.
2.  Comment: According to other available information, the number of workers at the Taganrog Krasnyy Kotelshchik (Red Boiler Maker) Plant has been given as not less than 4,000 in 1950, to 7,000-8,000.

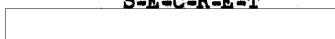
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